

Section 1: Human effects on biodiversity

Human activity	Why it happens	Effects
Polluting water with fertiliser and sewage	Farmers spread fertiliser on fields. Rain washes fertiliser into rivers and ponds. Sewage is released directly into rivers.	Fertilisers and sewage cause an increase in growth of algae . When the algae die , they are decomposed by bacteria that use oxygen . Other animals die due to a lack of oxygen .
Using land	Humans construct buildings , create quarries and farm .	Habitat for plants and animals is reduced .
Destroying peat bogs	Humans use peat to provide compost to increase food production.	Removes habitat, reducing biodiversity . Decay or burning of peat produces CO₂ .
Deforestation	To provide land for cattle and rice fields . To grow crops for biofuels .	Burning or decomposing trees releases CO₂ . Fewer trees to remove CO₂ from the atmosphere . Loss of biodiversity .
Producing acidic gases	Combustion of fossil fuels releases carbon dioxide, sulfur dioxide and nitrogen oxides . These gases dissolve in water making it acidic .	Acid rain. Damages plants . Can cause rivers and lakes to become acidic, killing animals and plants.
Polluting water with toxic chemicals	Pesticides and other toxic chemicals (e.g. from landfill) are washed into rivers and lakes by rain .	Toxic chemicals accumulate in animals. The further up the food chain , the greater the accumulation . Top predators die or fail to breed.
Increasing temperature of the planet (global warming)	Humans release extra greenhouse gases (CO₂ and methane) into the atmosphere and less CO₂ is absorbed by plants through photosynthesis. Greenhouse gases absorb heat and stop it escaping to space.	Loss of habitat as sea levels rise ; animals and plants can no longer survive in certain areas; reduced biodiversity ; change in migration patterns of animals.
Peat bog destruction	Destruction of peat bogs for land or use as compost	The decay or burning peat releases CO₂ in the atmosphere

Section 2: Maintaining biodiversity

Breeding programmes for **endangered species**.

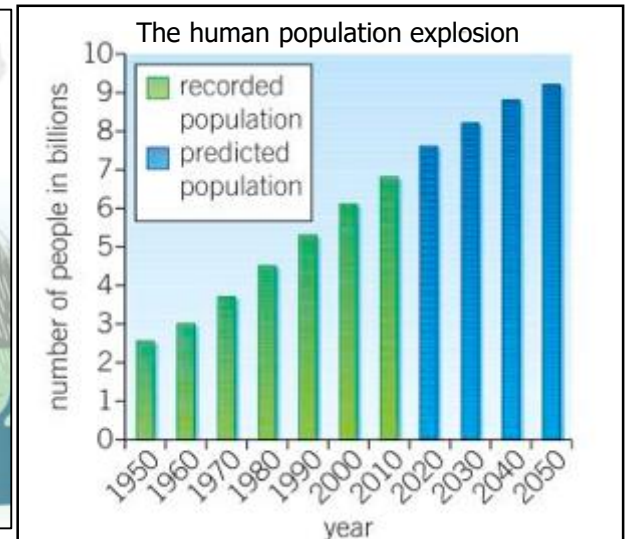
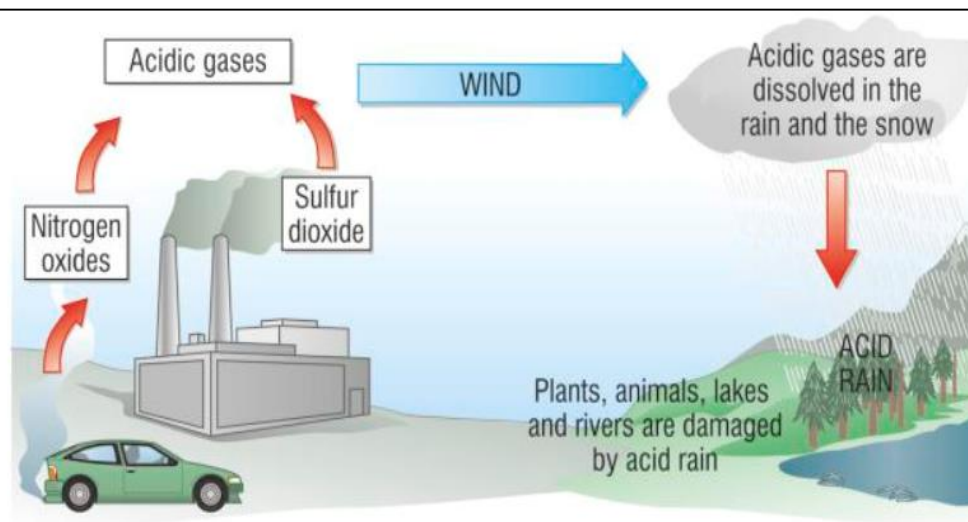
Protection and **regeneration** of **rare habitats**.

Reintroduction of field margins and **hedgerows** in agricultural areas where farmers grow only one type of crop

Reduction of deforestation

Reduction of carbon dioxide emissions by some **governments**

Recycling resources rather than dumping waste in landfill.



KNOWLEDGE



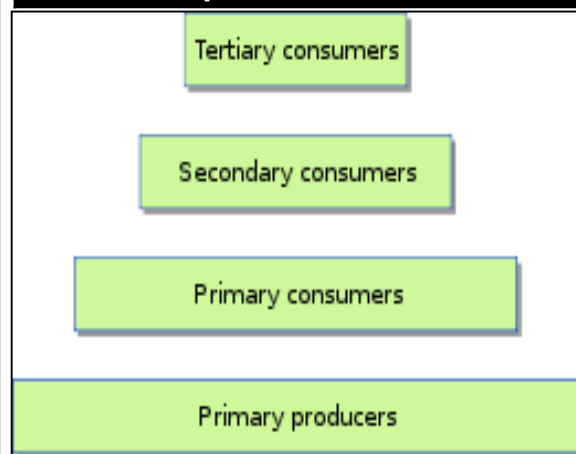
Biology Topic B18 Biodiversity and Ecosystems (Separate)

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Section 1: Decay

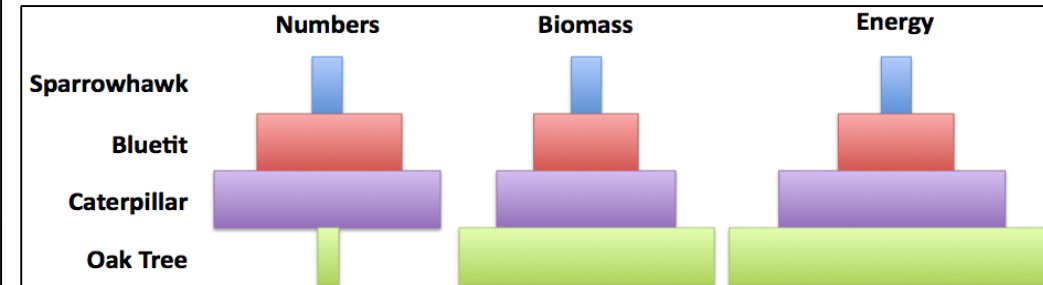
Compost	Decomposed organics matter
Decomposition	The breakdown of organic matter by microbes (bacteria/fungi) or detritus feeders (worms)
Conditions for decay	Warm, plenty of oxygen, moisture, plenty of microbes
Biogas	Methane gas produced by anaerobic decay of waste material, methane is used as a fuel for cooking, heating
Biogas generator	Need constant temperature. 2 types: batch and continuous

Section 2: Trophic levels



Section 3: Pyramids of biomass

Pyramids of biomass	Show the relative mass of each trophic level, must be drawn to scale
Biomass	The total quantity or mass of organisms in a given area or volume



Section 4: Calculating the efficiency of biomass transfer

$$\text{efficiency} = \frac{\text{biomass transferred to the next level}}{\text{biomass available at the previous level}} \times 100$$

example from above:

To calculate the % of the energy in the oak tree that is passed to the sparrow hawk here's what to do:

$$3 \div 100\,000 = 0.00003$$

$$0.0003 \times 100 = 0.003\%$$

Section 5: Transfer of biomass

The amount of energy (in the biomass of organisms) is reduced at each successive stage in a food chain
All of prey organism is not consumed e.g. bones, teeth, hair
Energy is 'lost' as the organisms' waste materials (faeces and urine)
Energy is transferred / lost / released during respiration
energy is transferred / lost as movement (kinetic energy)
energy is transferred / lost as heat (thermal energy)
energy is transferred / lost to the surroundings

Section 6: Food security

Food security	Means having enough food to feed the population
Threats to food security	World population rising too quickly, demand for certain types of food leads to scarcity, loss of crops in farming through new pests and disease, war over food
Fish stocks	Are declining due to over fishing. Fishing quotas and net size help to maintain fish stocks
Efficient food production	Intensive farming uses techniques to increase food production e.g. controlled temperature, restricted movement and continual feeding. Although this is controversial
Using biotechnology	Mycoprotein is a food made from fungi